

REMARKS

Claims 1, 2, 8, 9, 10, and 16 have been amended to further clarify the invention; in particular to distinguish between the structure before chemical mechanical polishing and the product structure formed after chemical mechanical polishing. No new matter is added by the amendment. Claims 1-12 and 14-18 remain pending.

Claims 1-12 and 14-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,626,740 ("Baker"). Applicants respectfully submit that the amended claims overcome the § 103 rejections.

Referring to the height differential set forth in claim 1, the Office states that this limitation refers to the structure prior to polishing. As amended, the claims clarify that the height differential limitation refers to the product structure; i.e., the structure formed after polishing. Thus, amended claim 1 requires that the highest and lowest points on the product structure have a height differential of 0.5 microns or greater. This limitation is not disclosed or suggested by Baker. Indeed, Baker explicitly teaches away from the claimed invention.

Baker teaches away from the claimed invention. Baker relates to a polishing pad for use in chemical mechanical polishing (CMP) that locally deforms under polishing pressure. Baker, abstract. Regarding substrate surfaces, Baker is

consistent with the general prior art, and states, "An ideal polished substrate surface has the following characteristics: low waviness (or low form error); low flatness; low roughness; no raised edge; low dub-off; and minimal scratches." Baker, col. 1, lines 62-65. In contrast to Baker, Applicants claims require the polished product structure to be at least partially non-planar. Baker, therefore, explicitly teaches away from the claimed invention.

The Office asserts that it would have been obvious to utilize the range set forth in the claims since "it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art." Office Action of 5/6/05, page 7, 1st paragraph. Applicants respectfully disagree. The height differentials set forth in the claims are so far outside the ranges contemplated by the reference that it cannot reasonably be concluded that Applicants have merely discovered optimum or working ranges.

Applicants' claimed height differential is completely outside the ranges of Baker and therefore cannot be considered an optimization of Baker. The maximum surface waviness of a glass disk polished with Baker's polishing pad is about 9.4 angstroms (0.00094 microns). See Baker, Table 1. This surface waviness is several orders of magnitude smaller than the

presently claimed height differential of 0.5 microns or greater. The claimed invention, therefore, does not overlap with Baker, and is too far outside the range of Baker to be considered an optimization.

In reference to claim 4, the Office states that Baker at col. 3, line 43, discloses that the workpieces include semiconductor devices, etc. Applicants submit that claim 4 does not state semiconductor devices. Thus it is unclear how the teaching at col. 3, line 34 of Baker relates to claim 4. Clarification is respectfully requested.

With respect to claims 11-12, the Office states that grooves and polishing pad bumps are well known in the art, therefore it would have been obvious to utilize these features "to achieve certain polishing conditions to obtain a desired result." Office Action, page 7, paragraph 4. Applicants submit that claims 11-12 are indirectly dependent on claim 1, which relates to a method for forming an at least partially non-planar structure. Therefore, even if pre-shaped asperities and bumps are known, the use of such features in the method of claim 1 is not known or suggested by the prior art.

The remaining dependent claims not specifically discussed herein are ultimately dependent upon the independent claims. Accordingly, the arguments presented above in support of the

claims are applicable to all the claims, including the dependent claims.

In summary, it is respectfully submitted that Baker does not disclose or suggest, and indeed teaches away from, the claimed invention. The claims, therefore, are not rendered obvious by Baker. Withdrawal of the § 103 rejection of claims 1-12 and 14-18 is respectfully requested.

Applicants submit that the pending claims are in condition for allowance and notice to this effect is respectfully requested. Should the Examiner believe a discussion of this matter would be helpful, the Examiner is invited to telephone the undersigned at (312) 913-0001.

Under 37 CFR 1.136(a)(3), the Office is authorized to treat any concurrent or future reply, requiring a petition for an extension of time under 37 CFR 1.136(a) for its timely submission, as incorporating a petition for an extension of time for the appropriate length of time. The Office is authorized to

charge any fees associated with such petition for an extension of time to Deposit Account No. 13-2490.

Respectfully submitted,

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